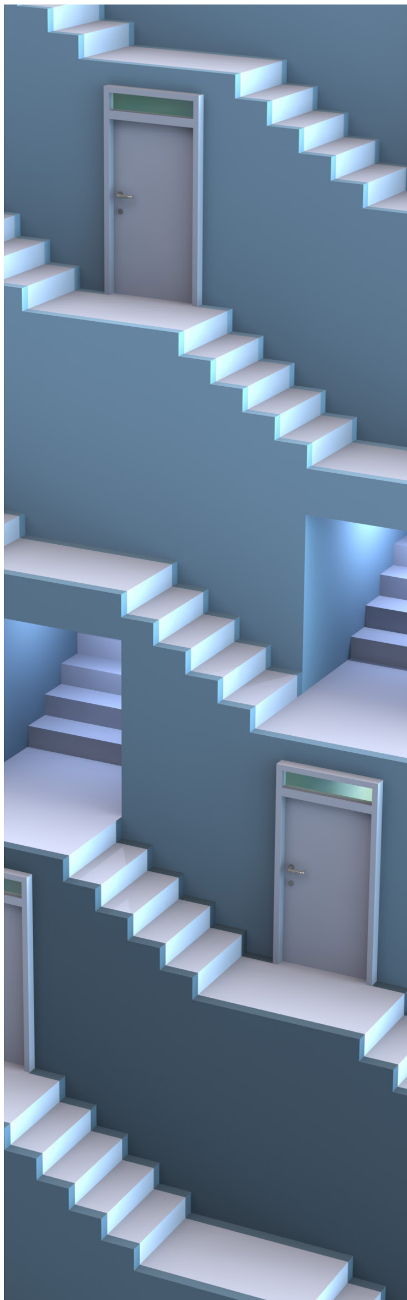
VIRTUS FUNDS

Addressing Sequence of Return Risk

Market declines early in retirement, along with ongoing withdrawals, can scramble your nest egg.

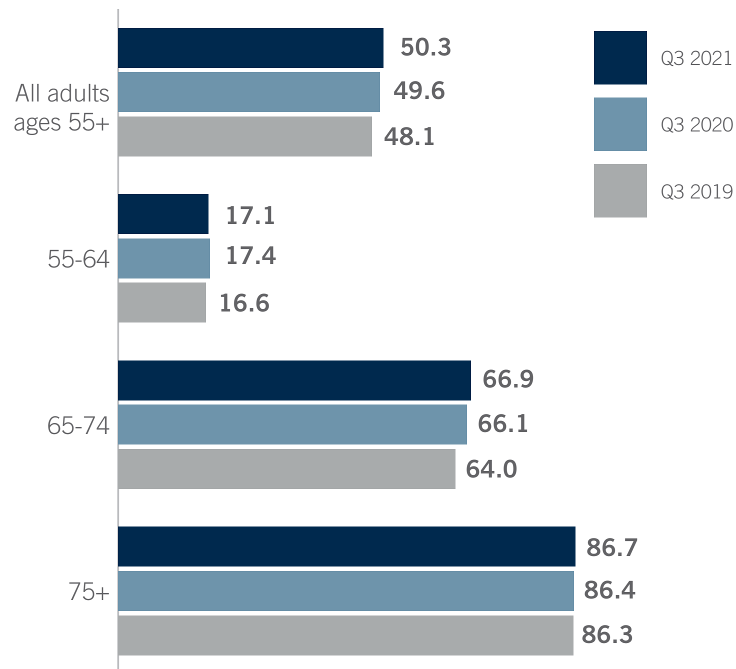


With half of older U.S. adults now retired, millions have had to transition from living off their paycheck to living off their portfolio, Social Security, and whatever retirement savings plans they've set up. But what happens if the markets take a deep dive just when they are ready to start taking withdrawals? This is known as "sequence of return risk."

A decline early in retirement can have a big impact on the value of one's nest egg. It means having to draw down a larger portion of one's portfolio to meet income needs, while a decline that occurs later might be less hazardous to one's wealth.

HALF OF OLDER U.S. ADULTS ARE NOW RETIRED

% of older adults who are retired



Note: "Retired" refers to those not in the labor force due to retirement. Source: Pew Research Center analysis of July, August, and September Current Population Survey monthly files (IPUMS).

Sequence of return risk can have a lasting impact on portfolio outcomes

What happens when a retiree pulls money for withdrawals in a down market? Consider two hypothetical portfolios illustrated below. In each scenario, the investor has saved $1,000,000 for retirement and plans to withdraw 5% of the initial value at the end of each year. The withdrawal amount grows at 2% per year.

Investor One retired at the beginning of 2000 and pulled money from the account during three consecutive years of negative market returns. As a result, this portfolio would have run out of money by 2018.

Investor Two, on the other hand, was lucky enough to have retired just three years later, at the beginning of 2003, missing those down markets and beginning to pull money in a rising market. This portfolio would actually have had over $3,000,000 by the end of 2020—quite a difference just based on when withdrawals began.

Investor One: Pulls assets during a bear market

Date	Withdrawal	S&P 500® Index Annual Return	Year-end Balance
			$1,000,000
2000	$50,000	-9.10%	$858,956
2001	$51,000	-11.89%	$705,862
2002	$52,020	-22.10%	$497,843
2003	$53,060	28.68%	$587,586
2004	$54,122	10.88%	$597,406
2005	$55,204	4.91%	$571,547
2006	$56,308	15.79%	$605,510
2007	$57,434	5.49%	$581,342
2008	$58,583	-37.00%	$307,675
2009	$59,755	26.46%	$329,345
2010	$60,950	15.06%	$318,006
2011	$62,169	2.11%	$262,553
2012	$63,412	16.00%	$241,159
2013	$64,680	32.39%	$254,585
2014	$65,974	13.69%	$223,460
2015	$67,293	1.38%	$159,259
2016	$68,639	11.96%	$109,667
2017	$70,012	21.83%	$63,597
2018	$71,412		—

Investor Two: Pulls assets during a bull market

Date	Withdrawal	S&P 500® Index Annual Return	Year-end Balance
	--	--	$1,000,000
2003	$50,000	28.68%	$1,236,845
2004	$51,000	10.88%	$1,320,439
2005	$52,020	4.91%	$1,333,279
2006	$53,060	15.79%	$1,490,800
2007	$54,122	5.49%	$1,518,583
2008	$55,204	-37.00%	$901,536
2009	$56,308	26.46%	$1,083,815
2010	$57,434	15.06%	$1,189,639
2011	$58,583	2.11%	$1,156,179
2012	$59,755	16.00%	$1,281,453
2013	$60,950	32.39%	$1,635,542
2014	$62,169	13.69%	$1,797,255
2015	$63,412	1.38%	$1,758,714
2016	$64,680	11.96%	$1,904,375
2017	$65,974	21.83%	$2,254,156
2018	$67,293	-4.38%	$2,088,032
2019	$68,639	31.49%	$2,676,839
2020	$70,012	18.40%	**$3,099,333**

Source: Morningstar Direct. Data as of December 31, 2020. Hypothetical distribution set up: $1,000,000 initial investment, $50,000 withdrawal starting at the end of year one which grows at 2% per annum. Each year-end balanced utilizes the return for the year and then after the year-end balance is calculated, the withdrawal is taken. For illustrative purposes only. Not representative of a Virtus portfolio. **Past performance is not indicative of future results.**

Adding high yield and dividend payers to portfolios may help income investors

Hybrid asset classes such as convertible bonds and traditional high yield bonds have historically captured some of the equity market return, but haven't been as sensitive to changes in equity market returns given the coupons generated by both asset classes. Dividend-paying stocks have also had reduced equity market sensitivity, and may help generate income with an attractive risk-reward profile, relative to broad-based equities.

PORTFOLIO IDEAS TO STEP INTO EQUITY RISK USING A RISK-AWARE FRAMEWORK

High Yield Bonds	Convertible Bonds	Dividend Paying Equities
▪ Corporate bonds with a credit rating off BB+ or below. ▪ These bonds have historically exhibited positive equity market sensitivity as the macroenvironment plays an important role in the ability of these companies to service their debt.	▪ Hybrid asset class that allows an investor to convert their bond into a pre-determined number of equity shares. ▪ As the stock price approaches the conversion price, the performance of these bonds is more closely linked with the underlying equity.	▪ Equity securities of companies that have historically paid out a portion of their earnings as dividends. ▪ Dividends have historically accounted for a significant percentage of overall equity returns and have provided a cushion to investors in down markets.

Increasing order of equity market participation over the long-term →

Convertible bonds, high yield bonds, and dividend-paying equities may provide downside mitigation during major equity market downturns

The key characteristic needed to reduce sequence of return risk is to limit losses and recover more quickly. Looking back at the past 20 years, there have been three significant market pullbacks: the early 2000's recession, the Great Recession of 2007-2008, and the COVID-19 selloff in early 2020. During these equity market downturns, convertible bonds, high yield bonds and dividend-paying equities provided downside mitigation by not falling as much as the S&P 500® Index, recovering more quickly (meaning getting back to positive territory), or both. This performance profile may have a powerful impact on income portfolios by helping manage the risk of withdrawals during negative market movements.

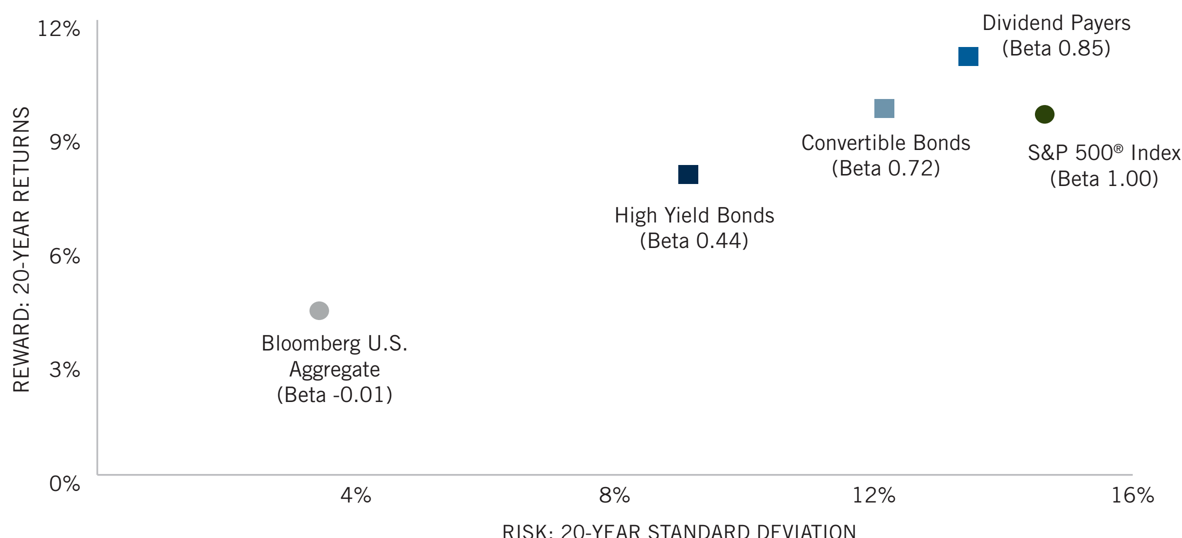
		S&P 500® Index	Dividend Payers	Convertible Bonds	High Yield
Pullback 1: 2000–2003	*Drawdown (%)*	-47.41	-25.83	-37.96	-14.32
	Peak	9/2/00	4/11/02	3/11/00	3/10/01
	Valley	10/9/02	3/11/03	10/8/02	10/10/02
	Recovery	10/23/06	12/1/03	1/9/06	3/21/03
Pullback 2: 2007–2009	*Drawdown (%)*	-55.25	-48.70	-46.57	-34.99
	Peak	10/10/07	6/5/07	10/13/07	6/1/07
	Valley	3/9/09	3/9/09	11/20/08	12/12/08
	Recovery	4/2/12	10/5/10	10/13/10	8/6/09
Pullback 3: 2020	*Drawdown (%)*	-33.79	-35.52	-26.75	-21.54
	Peak	2/20/20	1/18/20	2/20/20	2/21/20
	Valley	3/23/20	3/23/20	3/23/20	3/23/20
	Recovery	8/10/20	9/2/20	7/2/20	10/13/20

Source: Morningstar Direct. Data as of September 30, 2021. **Past performance is not indicative of future results.** Convertible bonds are represented by the ICE BofA U.S. Convertible Index, High Yield bonds are represented by the ICE BofA U.S. High Yield Index, and Dividend Payers are represented by the S&P 500® Dividend Aristocrats® Index.

Consider also the 20-year risk-return profile of high yield, convertibles, and dividend payers versus the Bloomberg U.S. Aggregate and S&P 500® indexes.

WEIGHING THE RISK AND REWARD OF EQUITY SUBSTITUTES

20-Year Risk/Return Profile and Beta to S&P 500® Index

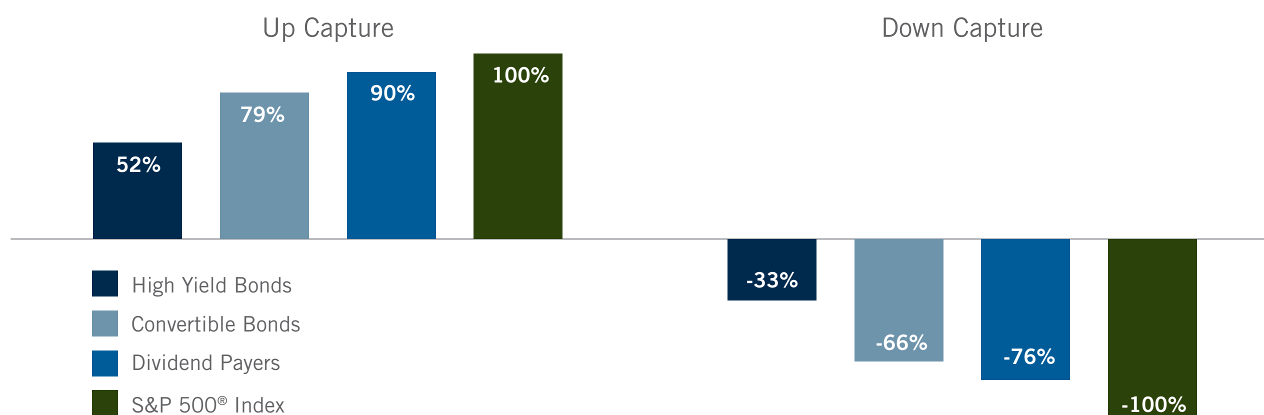


Source: Morningstar Direct. Data as of September 30, 2021. 20-year period. **Past performance is not indicative of future results.** Convertible bonds are represented by the ICE BofA U.S. Convertible Index, High Yield bonds are represented by the ICE BofA U.S. High Yield Index, and Dividend Payers are represented by the S&P 500® Dividend Aristocrats® Index.

An attractive balance of upside participation and downside mitigation

Looking at the 20-year capture profile of these asset classes gives a sense of why they may be of interest to investors looking to reduce sequence of return risk. Take convertible bonds, for example. Historically, the asset class has captured roughly 79% of the upward movement of equities, but with only 66% of the downside. So, investors have had the potential to grow their wealth by capturing some of the upside of equities, but with less exposure to the drawdowns that come with equity investing. High yield bonds had the most conservative profile within this analysis, capturing 52% of the upside of the S&P 500 with only 33% of the downside. Dividend-paying equities captured an attractive 90% of the upside of the S&P 500, but with only 76% of the downside. So depending on each investor's unique circumstances and portfolio allocations, these asset classes may help improve a portfolio's equity market sensitivity and potentially reduce sequence of return risk.

20-YEAR CAPTURE PROFILE RELATIVE TO S&P 500® INDEX

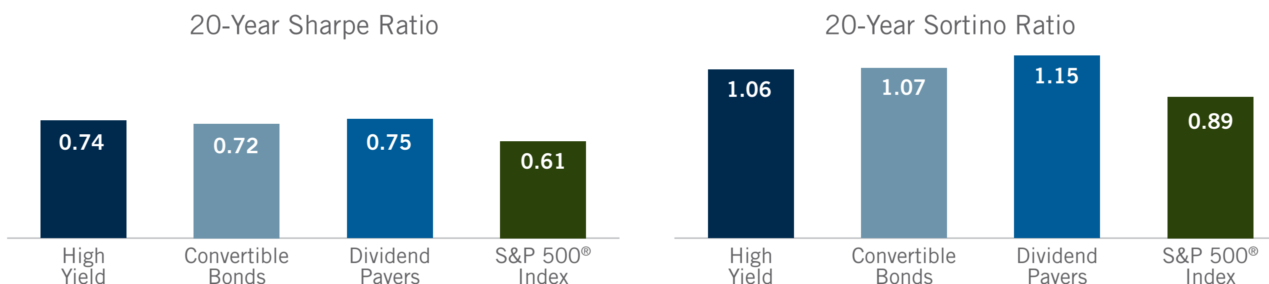


Source: Morningstar Direct. Data as of September 30, 2021. 20-year period. **Past performance is not indicative of future results.** Convertible bonds are represented by the ICE BofA U.S. Convertible Index, High Yield bonds are represented by the ICE BofA U.S. High Yield Index, and Dividend Payers are represented by the S&P 500® Dividend Aristocrats® Index.

A history of attractive risk-adjusted returns

The attractive capture profiles of these asset classes are also combined with long-term risk-adjusted returns, as measured by Sharpe and Sortino ratios, that have historically been stronger than the S&P 500.

HOW CONVERTIBLES, HIGH YIELD, AND DIVIDEND PAYING STOCKS HAVE PROVIDED ATTRACTIVE RISK-ADJUSTED RETURNS RELATIVE TO EQUITIES



Source: Morningstar Direct. Data as of September 30, 2021. 20 year period. **Past performance is not indicative of future results.** Convertible bonds are represented by the ICE BofA U.S. Convertible Index, High Yield bonds are represented by the ICE BofA U.S. High Yield Index, and Dividend Payers are represented by the S&P 500® Dividend Aristocrats® Index.

The impact on sequence of return risk

The scenario on the chart below is the same as for Investor One in the earlier example; however, allocations to convertible bonds, high yield bonds, and dividend payers are also illustrated. The portfolio that was drawing just from the S&P 500 would have run out of money by 2018. However, if an investor were to have allocated 25% of the portfolio to one of these asset classes, the life of the portfolio would have been extended, allowing them to continue to draw assets to fund retirement years after the 100% S&P 500 portfolio would have been depleted.

ALLOCATIONS TO THESE ASSET CLASSES WOULD HAVE IMPROVED PORTFOLIO OUTCOMES RELATIVE TO EQUITIES FOR INCOME INVESTORS

5% annual withdrawal, growing 2% annually		100% S&P 500® Index		75% S&P 500 & 25% High Yield		75% S&P 500 & 25% Convertibles		75% S&P 500 & 25% Dividend Payers	
Year	Withdrawal	Return	Year-end Value	Return	Year-end Value	Return	Year-end Value	Return	Year-end Value
			$1,000,000		$1,000,000		$1,000,000		$1,000,000
2000	$50,000	-9.10%	$858,956	-8.11%	$868,925	-9.33%	$856,721	-4.30%	$907,030
2001	$51,000	-11.89%	$705,862	-7.80%	$750,191	-10.03%	$719,830	-6.21%	$799,712
2002	$52,020	-22.10%	$497,843	-17.05%	$570,271	-18.72%	$533,053	-19.04%	$595,405
2003	$53,060	28.68%	$587,586	28.55%	$680,027	28.30%	$630,849	27.86%	$708,199
2004	$54,122	10.88%	$597,406	10.88%	$699,885	10.56%	$643,376	12.03%	$739,249
2005	$55,204	4.91%	$571,547	4.37%	$675,255	3.94%	$613,501	4.61%	$718,095
2006	$56,308	15.79%	$605,510	14.79%	$718,800	15.05%	$649,550	16.17%	$777,910
2007	$57,434	5.49%	$581,342	4.67%	$694,925	5.25%	$626,237	3.60%	$748,510
2008	$58,583	-37.00%	$307,675	-34.35%	$397,665	-36.68%	$337,951	-33.22%	$441,284
2009	$59,755	26.46%	$329,345	34.23%	$474,017	32.13%	$386,780	26.49%	$498,415
2010	$60,950	15.06%	$318,006	15.10%	$484,620	15.49%	$385,744	16.13%	$517,884
2011	$62,169	2.11%	$262,553	2.68%	$435,437	0.29%	$324,689	3.67%	$474,700
2012	$63,412	16.00%	$241,159	15.90%	$441,253	15.74%	$312,389	16.24%	$488,373
2013	$64,680	32.39%	$254,585	26.15%	$491,941	30.52%	$343,055	32.36%	$581,728
2014	$65,974	13.69%	$223,460	10.89%	$479,550	12.63%	$320,397	14.21%	$598,395
2015	$67,293	1.38%	$159,259	-0.12%	$411,668	0.29%	$254,036	1.27%	$538,703
2016	$68,639	11.96%	$109,667	13.34%	$397,954	11.58%	$214,807	11.93%	$534,317
2017	$70,012	21.83%	$63,597	18.24%	$400,546	19.80%	$187,325	21.81%	$580,818
2018	$71,412	-4.38%	—	-3.85%	$313,695	-3.25%	$109,823	-3.97%	$486,346
2019	$72,841	31.49%	—	27.22%	$326,235	29.40%	$69,274	30.61%	$562,367
2020	$74,297	18.40%	—	15.34%	$301,984	25.35%	$12,540	15.97%	$577,870

Source: Morningstar Direct. Data as of December 31, 2020. Hypothetical distribution set up: $1,000,000 initial investment, $50,000 withdrawal starting at the end of year one which grows at 2% per annum. Each year-end balanced utilizes the return for the year and then after the year-end balance is calculated, the withdrawal is taken. **Past performance is not indicative of future results.** Convertible bonds are represented by the ICE BofA U.S. Convertible Index, High Yield bonds represented by the ICE BofA U.S. High Yield Index, Dividend Payers are represented by the S&P 500® Dividend Aristocrats® Index.

Conclusion

Now may be an opportune time to reassess portfolio allocations to ensure that one's income portfolio is providing the right risk and return balance to meet long-term income needs.

- If duration risk (the sensitivity of a fixed income instrument to a change in interest rates) is front of mind, reducing maturity and allocating to credit may help in rising rate environments.
- If one's portfolio is struggling to meet income needs, moving out the risk spectrum may help enhance the overall yield of the portfolio. Consider utilizing active management, given the potential of a professional manager to find the best risk-reward trade-offs and minimize credit risk.
- Income investors concerned about rising inflation may want to find areas of the market that can preserve purchasing power by outyielding the inflation rate.
- Finally, hybrid asset classes and dividend-paying equities may be an attractive alternative to the S&P 500 in the context of sequence of return risk and helping grow long-term wealth.

To learn more about strategies that may help address sequence of return risk, please contact us at 800-243-4361 or visit virtus.com.

Glossary—Sharpe Ratio: A risk-adjusted measure calculated using standard deviation and excess return to determine reward per unit of risk. **Standard Deviation:** Measures variability of returns around the average return for an investment portfolio. Higher standard deviation suggests greater risk. **Sortino ratio**: A variation of the Sharpe ratio which differentiates harmful volatility from volatility in general by using a value for downside deviation. The Sortino ratio is the excess return over the risk-free rate divided by the downside semi-variance, and so it measures the return to "bad" volatility. **Beta:** A quantitative measure of the volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole. **Correlation:** A statistical measure of how two securities move in relation to each other. **Up/Down Capture Ratio:** Measures how well a manager was able to replicate or improve on phases of positive benchmark returns and how badly the manager was impacted by phases of negative benchmark returns.

Index Definitions—The **S&P 500® Index** is a free-float market-capitalization weighted index of 500 of the largest U.S. companies. The index is calculated on a total return basis with dividends reinvested. The **Bloomberg U.S. Aggregate Bond Index** measures the U.S. investment grade fixed rate bond market. The **ICE BofA U.S. Convertibles Index** tracks the performance of publicly issued U.S. dollar denominated convertible securities of U.S. companies. The **ICE BofA U.S. High Yield Index** tracks the performance of below investment grade U.S. dollar denominated corporate bonds publicly issued in the U.S. domestic market and includes issues with a credit rating of BBB or below. The **S&P 500® Dividend Aristocrats®** measure the performance of S&P 500 companies that have increased dividends every year for the last 25 consecutive years. The Index treats each constituent as a distinct investment opportunity without regard to its size by equally weighting each company. The indexes are calculated on a total return basis. The indexes are unmanaged, their returns do not reflect any fees, expenses, or sales charges, and they are not available for direct investment.

IMPORTANT RISK CONSIDERATIONS

Issuer Risk: The portfolio will be affected by factors specific to the issuers of securities and other instruments in which it invests, including actual or perceived changes in the financial condition or business prospects of such issuers. **Convertible Securities:** A convertible security may be called for redemption at a time and price unfavorable to the fund. **Interest Rate:** The values of debt instruments may rise or fall in response to changes in interest rates, and this risk may be enhanced for securities with longer maturities. **Counterparties:** There is risk that a party upon whom the fund relies to complete a transaction will default. **Credit Risk:** If the issuer of a debt instrument fails to pay interest or principal in a timely manner, or negative perceptions exist in the market of the issuer's ability to make such payments, the price of the security may decline. **Prepayments/Calls**: If issuers prepay or call fixed rate obligations when interest rates fall, it may force the portfolio to reinvest at lower interest rates. **Equity Securities:** The market price of equity securities may be adversely affected by financial market, industry, or issuer-specific events. Focus on a particular style or on small or medium-sized companies may enhance that risk. **High Yield Fixed Income Securities:** There is a greater risk of issuer default, less liquidity, and increased price volatility related to high yield securities than investment grade securities. **Credit & Interest:** Debt instruments are subject to various risks, including credit and interest rate risk. The issuer of a debt security may fail to make interest and/or principal payments. Values of debt instruments may rise or fall in response to changes in interest rates, and this risk may be enhanced with longer-term maturities. **Market Volatility:** Local, regional, or global events such as war, acts of terrorism, the spread of infectious illness or other public health issues, recessions, or other events could have a significant impact on the portfolio and its investments, including hampering the ability of the portfolio manager(s) to invest the portfolio's assets as intended. **Prospectus:** For additional information on risks, please see the fund's prospectus.

Please consider a Fund's investment objectives, risks, charges, and expenses carefully before investing. For this and other information about any Virtus Fund, contact your financial representative, call 800-243-4361, or visit virtus.com for a prospectus or summary prospectus. Read it carefully before investing.

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